

# APPENDIX A



Hend - 26  
3052/117  
Docket No. 0317MH-23513

**CORRECTED**  
**SUBSTITUTE SPECIFICATION**

TO ALL WHOM IT MAY CONCERN:

BE IT KNOWN that I, **DANIEL A. HENDERSON**, have invented new and useful improvements in a

**METHOD AND APPARATUS FOR IMPROVED ~~PAGING RECEIVER~~**  
**PERSONAL COMMUNICATION DEVICES AND SYSTEMS**

of which the following is a specification:



## APPENDIX A



IN THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF ILLINOIS  
EASTERN DIVISION

SMARTCALL LICENSING  
INCORPORATED,

Plaintiff,

v.

CELLCO PARTNERSHIP  
d/b/a VERIZON WIRELESS

Defendant.

Civil Action No. 05 C 7160

Judge Ronald Guzman

Magistrate Judge Cole

SmartCall v. Celco Partnership (Verizon)

RPN, PKV, BJF, BJM, OK, Henderson, Katy

Orig: BB Clerk: AE Secy:

LE

**DEFENDANT'S PRIOR ART STATEMENT**

Defendant Celco Partnership d/b/a Verizon Wireless ("Verizon Wireless"), by and through its undersigned counsel, hereby provide Plaintiff with Defendant's Second Prior Art Statement, pursuant to the Court's Order of February 23, 2007.

The attached chart and exhibits A- H, set forth Defendant's contentions as to how U.S. Patent Number 6,427,064 ("the '064 patent") is invalid due to disclosures contained in the prior art. Defendant herein addresses only those claims for which Plaintiff has identified as purportedly being infringed. While Plaintiff had previously identified only claims 1 through 3, 10 through 12 and 15 as purportedly being infringed, on March 30, 2007, Plaintiff for the first time identified additional claims 4 through 9 as purportedly being infringed by Defendant. Specifically, Plaintiff's Third Claim Chart identifies claims 1 through 12 and 15 as purportedly being infringed by Defendant. Accordingly, Defendant addresses only these specific claims.

Claims 1-12 and 15 of the '064 patent are invalid as being anticipated by *Azuma*, Japanese Patent Publication Number H04-293324 (Ex. A) and/or *Wohl*, PCT Application Number PCT/US91/08517 (Ex. B). To the extent that claims 1-10 are not anticipated, those

claims are rendered obvious over *Azuma* and/or *Wohl* in view of *Breeden*, U.S. Patent Number 4,994,797 (Ex. C) and/or *Dai et al.*, U.S. Patent Number 5,307,399 (Ex. D). In addition, Claim 11, is also rendered obvious in further view of *DeLuca et al.*, U.S. Patent Number 4,872,005 (Ex. E). Claim 12 is invalid as being rendered obvious also in view of *DeLuca et al.* Claim 15 is invalid as being rendered obvious in further view of *Vandel Heuven et al.*, U.S. Patent Number 5,281,962 (Ex. F).

Defendant further relies upon the general knowledge of those skilled in the art relative to telephony, and more specifically "caller ID", where it was known by those skilled in the art more than one year prior to the filing date of the '064 patent to automatically display information related to received caller identification information. See, for example, *Figa, et al.*, U.S. Patent No. 4,924,496 (Ex. G) and *Lim*, U.S. Patent No. 5,265,145 (Ex. H). Defendant also reserves the right to rely upon any and all of the prior art cited during the prosecution of the '064 patent and/or during the prosecution of U.S. Patent No. 6,278,862 and any and all related continuations, continuations-in-part and divisionals or as otherwise permitted under 35 U.S.C. §282.

In the attached chart, Defendant has provided specific citations to portions of each of the references corresponding to the claim limitations of the asserted claims of the '064 patent. However, Defendant has not necessarily identified each and every disclosure of a limitation occurring within the particular prior art reference. Defendant cites only to the portion(s) of the prior art references that it presently deems most relevant, notwithstanding that a particular reference may contain additional support for and/or disclosure invalidating a particular '064 patent claim limitation. Furthermore, where Defendant cites to a particular figure from a prior art reference, the citation to the figure should be understood to encompass any and all text referring or relating to that figure -- in addition to the figure itself. Conversely, where a cited

## Defendant's Prior Art Statement

<p><b>CLAIM 1.</b> A method of communicating information from a page-originating communicant to a page-receiving communicant utilizing a paging network which operates by generating a page after receiving a paging request from said page-originating communicant over a telephone network, comprising the method steps of:</p>	<p>Paging systems in which a page-originating communicant, via a telephone network sends a page request to a paging network which is to be received by a page-receiving communicant were known in the art more than one year before the filing date of the '064 patent. <i>Azuma</i>, Japanese Patent Publication Number H04-293324 (¶15), <i>Wohl</i>, PCT App. No. PCT/US91/08517 (pg. 10, ln. 29 - pg. 11, ln. 6). Additional examples are disclosed in <i>Breeden</i>, U.S. Pat. No. 4,994,797 (col. 2, ln 45 - col. 4, ln 38) and <i>Dai et al</i>, U.S. Pat. No. 5,307,399 (col. 4, lns 57-64).</p>
<p>(a) providing a portable communication device identified in said paging network to said page-receiving communicant, said portable communication device including:</p>	<p>The use of portable communication devices for use in paging systems is inherent in the concept of a paging system and was known in the art prior to more than one year before the filing of the '064 patent. <i>Azuma</i>, (¶8), <i>Wohl</i>, (pg. 1, ln. 2 - 6), <i>Breeden</i>, (col. 2, ln 45 - col. 4, ln 38) <i>Dai</i> (col. 2, lns. 16-20).</p>
<p>(1) a database recorded in memory with a plurality of associated data fields, including a numeric field which is representative of telephone numbers; and</p>	<p><i>Azuma</i> and <i>Wohl</i> each disclose providing a directory of information in a database internal to a portable communication device which is representative of telephone numbers. <i>Azuma</i>, (¶10), <i>Wohl</i> (pg 10, lns 5-15)</p>
<p>(2) means for comparing information obtained from said paging network with at least one of said plurality of associated data fields;</p>	<p><i>Azuma</i> and <i>Wohl</i> each disclose comparing received page information to information contained in a database internal to a portable communication device. <i>Azuma</i>, (¶10), <i>Wohl</i> (pg 10, lns 5-15)</p>
<p>(3) a display member for displaying at least one of (1) information obtained from said paging network, and (2) information obtained from said plurality of data fields;</p>	<p><i>Azuma</i> and <i>Wohl</i> each disclose a display member for displaying at least one of: information obtained from said paging network, and information obtained from data contained in an internal database of a portable communication device. <i>Azuma</i> (¶10, Fig. 1, ref. no. 16), <i>Wohl</i> (pg 10, lns 5-15, Fig. 1, ref. no. 34)</p>
<p>(b) initiating communication between said page-originating communicant and said numeric paging network over said telephone network;</p>	<p>Paging systems in which a page-originating communicant, via a telephone network initiates a communication though a page request to a numeric paging network which is to be received by a page-receiving communicant were known in the art more than one year before the filing date of the '064 patent. <i>Azuma</i> (¶7), <i>Wohl</i>, (pg. 10, ln. 29 - pg. 11, ln. 6). Two additional examples are disclosed in <i>Breeden</i> (col. 2, ln 45 - col. 4, ln 38) and <i>Dai et al</i></p>

	(col. 4, lns 57-64).
(c) automatically passing caller-identification information from said telephone network to said paging network, said caller-identification information including at least a bit string representation of a telephone number for a particular telephone unit utilized by said page originating communicant in making said paging request without requiring entry by said page-originating communicant of said caller-identification information;	<i>Azuma</i> (§10) discloses automatically passing caller identification from a telephone network to a paging network wherein the caller-identification information is obtained via automatic number identification. <i>See also Breeden</i> (col. 3, lns 9-15), <i>Dai et al.</i> (col. 23, lns 51-58).
(d) allowing input by said page-originating communicant of optional numeric data into said paging network;	<i>Azuma</i> (§§3, 7, 11, 15) and <i>Wohl</i> (pg. 10, lns 5-15) each disclose a paging system which allows the page-originating communicant to enter optional numeric data into the paging network. <i>See also Breeden</i> (col 2, lns 45-60), <i>Dai et al.</i> (col. 8, lns 19-24).
(e) utilizing said paging network to transmit to said page-receiving communicant (1) said caller-identification information including at least a bit string representation of a telephone number for a particular telephone unit utilized by said page-originating communicant in making said paging request without requiring entry by said page-originating communicant of said caller-identification information, or (2) said optional numeric data;	<i>Azuma</i> (§10) discloses the transmission of caller identification information to the page-receiving communicant without requiring entry by said page originating communicant. <i>Azuma</i> (§11) and <i>Wohl</i> (pg 10, lns 5-15) each disclose the transmission of optional numeric data to a page-receiving communicant. <i>See also Breeden</i> (col. 3, lns 9-15 and col. 2, lns 45-60), <i>Dai et al.</i> (col. 8, lns 19-24 and col. 23, lns 51-58)
(f) receiving (1) said caller-identification information including at least a bit string representation of a telephone number for a particular telephone unit utilized by said page-originating communicant in making said paging request without requiring entry by said page-originating communicant of said caller-identification information, or (2) said optional numeric data at said portable communication device identified in said paging network to said page-receiving communicant;	<i>Azuma</i> (§10) discloses receipt of caller identification information to the page-receiving communicant without requiring entry by said page originating communicant. <i>Azuma</i> (§11) and <i>Wohl</i> (pg 10, lns 5-15) each disclose the receipt of optional numeric data to a page-receiving communicant. <i>See also Breeden</i> (col. 3, lns 9-15 and col. 2, lns 45-60), <i>Dai et al.</i> (col. 8, lns 19-24 and col. 23, lns 51-58)
(g) utilizing said portable communication device for analyzing said caller-identification information or optional	<i>Azuma</i> (§10) discloses utilizing the caller identification information by the page-receiving communicant for comparison within the portable

numeric data by utilizing said means for comparing which is resident in said portable communication device to compare said caller-identification information or said optional numeric data with particular ones of said plurality of associated data fields of said database recorded in memory of said portable communication device; and	communication device to an internal database. <i>Azuma</i> (¶11) and <i>Wohl</i> (pg 10, lns 5-15), each discloses utilizing the caller identification information or optional numeric data by the page-receiving communicant for comparison within the portable communication device to an internal database. See also <i>Breeden</i> (col. 3, lns 9-15 and col. 2, lns 45-60), <i>Dai et al.</i> (col. 8, lns 19-24 and col. 23, lns 51-58)
(h) displaying information in said display member of said portable communication device resulting from said step of utilizing said portable communication device.	<i>Azuma</i> and <i>Wohl</i> each disclose displaying information contained in an internal database resulting from comparing caller identification information or an optional numeric message with information contained in those internal databases. <i>Azuma</i> (¶¶10-13), <i>Wohl</i> (pg 10, lns 5-15).
<b>CLAIM 2.</b> A method of communicating, according to claim 1,	
wherein said step of utilizing said portable communication device for analyzing includes: comparing at least one of (1) said caller-identification information and (2) said optional numeric data to at least portions of said database.	<i>Azuma</i> discloses comparing caller identification information or an optional numeric message with information contained in an internal database of a portable communication device, <i>Azuma</i> (¶¶10-13), <i>Wohl</i> (pg 10, lns 5-15). See also <i>Breeden</i> (col. 3, lns 9-15 and col. 8, lns 29-68), <i>Dai et al.</i> (col. 8, lns 19-24 and col. 23, lns 51-58)
<b>CLAIM 3.</b> A method of communicating, according to claim 1,	
wherein said step of utilizing said portable communication device for analyzing comprises: comparing said caller-identification information to said telephone number field.	<i>Azuma</i> discloses comparing caller identification information to information contained in an internal database of a portable communication device. <i>Azuma</i> (¶¶10-13).
<b>CLAIM 4.</b> A method of communicating, according to claim 1,	
wherein said step of utilizing said portable communication device for analyzing includes: comparing said optional numeric data to said telephone number field.	<i>Azuma</i> and <i>Wohl</i> each disclose comparing an optional numeric message to data stored in an internal database of a portable communication device in order to obtain an alpha-numeric message. <i>Azuma</i> (¶¶11), <i>Wohl</i> (pg 10, lns 5-15). See also <i>Breeden</i> (col. 3, lns 9-15 and col. 8, lns 29-68), <i>Dai et al.</i> (col. 8, lns 19-24 and col. 23, lns 51-58)
<b>CLAIM 5.</b> A method of communicating, according to claim 4,	
further including: identifying matches between said optional numeric data and	<i>Azuma</i> and <i>Wohl</i> each disclose comparing an optional numeric message to data stored in an



at least one matched data item in said telephone number field.	internal database of a portable communication device in order to obtain an alpha-numeric message. (par. 15). <i>Azuma</i> (¶¶10-13), <i>Wohl</i> (pg 10, lns 5-15). See also <i>Breeden</i> (col. 3, lns 9-15 and col. 8, lns 29-68), <i>Dai et al.</i> (col. 8, lns 19-24 and col. 23, lns 51-58)
<b>CLAIM 6.</b> A method of communicating, according to claim 5,	
further including: displaying information contained in selected ones of said plurality of data fields which are associated with said at least one matched data item in said display member of said portable communication device.	<i>Azuma</i> and <i>Wohl</i> each disclose comparing an optional numeric message to data stored in an internal database of a portable communication device in order to display an alpha-numeric message. <i>Azuma</i> (¶¶10-13), <i>Wohl</i> (pg 10, lns 5-15). See also <i>Breeden</i> (col. 3, lns 9-15 and col. 8, lns 29-68), <i>Dai et al.</i> (col. 8, lns 19-24 and col. 23, lns 51-58)
<b>CLAIM 7.</b> A method of communicating, according to claim 6,	
further including: displaying at least a portion of said caller-identification information in said display member of said portable communication device.	<i>Azuma</i> discloses comparing caller identification information to data stored in an internal database of a portable communication device in order to display an alpha-numeric message which includes at least a portion of the caller identification information. (¶15). See also <i>Breeden</i> (col. 3, lns 9-15 and col. 8, lns 29-68), <i>Dai et al.</i> (col. 8, lns 19-24 and col. 23, lns 51-58)
<b>CLAIM 8.</b> A method of communicating, according to claim 6,	
wherein said information displayed in said display member provides an indication of identity of said page-originating communicant.	<i>Azuma</i> and <i>Wohl</i> each disclose comparing an optional numeric message to data stored in an internal database of a portable communication device and displaying the identity of the page originating communicant. <i>Azuma</i> (¶¶10-13), <i>Wohl</i> (pg 10, lns 5-15). See also <i>Breeden</i> (col. 3, lns 9-15 and col. 8, lns 29-68), <i>Dai et al.</i> (col. 8, lns 19-24 and col. 23, lns 51-58)
<b>CLAIM 9.</b> A method of communicating, according to claim 8,	
wherein said information displayed in said display member comprises at least one name associated in said database with said optional numeric data.	<i>Azuma</i> and <i>Wohl</i> each disclose comparing an optional numeric message with information contained in an internal database of a portable communication device and displaying at least a portion of directory information with names contained in an internal database of a portable communication device. <i>Azuma</i> (¶¶10-13), <i>Wohl</i> (pg 10, lns 5-15). See also, <i>Breeden</i> (col. 3, lns 9-15

	and col. 8, lns 29-68), <i>Dai et al.</i> (col. 8, lns 19-24 and col. 23, lns 51-58)
<b>CLAIM 10.</b> A method of communicating information from a page-originating communicant to a page-receiving communicant utilizing a paging network which operates by generating a page after receiving a paging request from said page-originating communicant over a telephone network, said paging request including caller-identification information, including at least a bit string representation of a telephone number for a particular telephone unit utilized by said page-originating communicant in making said paging request, comprising the method steps of:	Paging systems in which a page-originating communicant, via a telephone network, sends a page request to a paging network which is to be received by a page-receiving communicant were known in the art more than one year before the filing date of the '064 patent. <i>Azuma</i> , Japanese Patent Publication Number H04-293324 (¶15). Additional examples are disclosed in <i>Breeden</i> , U.S. Pat. No. 4,994,797 (col. 2, ln 45 - col. 4, ln 38) and <i>Dai et al.</i> , U.S. Pat. No. 5,307,399 (col. 4, lns 57-64).
(a) providing a portable communication device identified in said paging network to said page-receiving communicant, said portable communication device including:	The use of portable communication devices for use in paging systems is inherent in the concept of a paging system and was known in the art prior to more than one year before the filing of the '064 patent. <i>Azuma</i> , (¶8), <i>Wohl</i> , (pg. 1, ln. 2 - 6), <i>Breeden</i> (clo. 2, ln 45 - col. 4 ln 38), <i>Dai</i> (col. 2, lns. 16-20).
(1) a database recorded in memory with a plurality of associated data fields, including a numeric field which is representative of telephone numbers;	<i>Azuma</i> and <i>Wohl</i> each disclose providing a directory of information in a database internal to a portable communication device which is representative of telephone numbers. <i>Azuma</i> , (¶10), <i>Wohl</i> (pg 10, lns 5-15)
(2) means for comparing information obtained from said paging network with at least one of said plurality of associated data fields;	<i>Azuma</i> and <i>Wohl</i> each disclose comparing received page information to information contained in a database internal to a portable communication device. <i>Azuma</i> , (¶10), <i>Wohl</i> (pg 10, lns 5-15)
(3) a display member for displaying at least one of (1) information obtained from said paging network, and (2) information obtained from said plurality of data fields;	<i>Azuma</i> and <i>Wohl</i> each disclose a display member for displaying at least one of: information obtained from said paging network, and information obtained from data contained in an internal database of a portable communication device. <i>Azuma</i> (¶10, Fig. 1, ref. no. 16), <i>Wohl</i> (pg 10, lns 5-15, Fig. 1, ref. no. 34)
(b) initiating communication between said page-originating communicant and said paging network over said telephone network;	Paging systems in which a page-originating communicant, via a telephone network initiates a communication though a page request to a paging network which is to be received by a page-receiving communicant were known in the art more than one year before the filing date of the '064

	patent. <i>Azuma</i> (§7), <i>Wohl</i> , (pg. 10, ln. 29 - pg. 11, ln. 6). Two additional examples are disclosed in <i>Breeden</i> (col. 2, ln 45 - col. 4, ln 38) and <i>Dai et al</i> (col. 4, lns 57-64).
(c) automatically passing said caller-identification information from said telephone network to said paging network;	<i>Azuma</i> (§10) discloses automatically passing caller identification from a telephone network to a paging network wherein the caller-identification information is obtained via automatic number identification. <i>See also Breeden</i> (col. 3, lns 9-15), <i>Dai et al.</i> (col. 23, lns 51-58).
(d) allowing input by said page-originating communicant of optional numeric data into said paging network;	<i>Azuma</i> (§§3, 7, 11, 15) and <i>Wohl</i> (pg. 10, lns 5-15) each disclose a paging system which allows the page-originating communicant to enter optional numeric data into the paging network. <i>See also Breeden</i> (col 2, lns 45-60), <i>Dai et al.</i> (col. 8, lns 19-24).
(e) utilizing said paging network to transmit to said page-receiving communicant (1) said caller-identification information or (2) said optional numeric data;	<i>Azuma</i> (§10) discloses the transmission of caller identification information to the page-receiving communicant without requiring entry by said page originating communicant. <i>Azuma</i> (§11) and <i>Wohl</i> (pg 10, lns 5-15) each disclose the transmission of an optional numeric message to a page-receiving communicant. <i>See also Breeden</i> (col. 3, lns 9-15 and col. 2, lns 45-60), <i>Dai et al.</i> (col. 8, lns 19-24 and col. 23, lns 51-58)
(f) receiving (1) said caller-identification information or (2) said optional numeric data at said portable communication device identified in said paging network to said page-receiving communicant;	<i>Azuma</i> (§10) discloses receipt of caller identification information to the page-receiving communicant without requiring entry by said page originating communicant. <i>Azuma</i> (§11) and <i>Wohl</i> (pg 10, lns 5-15) each disclose the receipt of optional numeric data to a page-receiving communicant. <i>See also Breeden</i> (col. 3, lns 9-15 and col. 2, lns 45-60), <i>Dai et al.</i> (col. 8, lns 19-24 and col. 23, lns 51-58)
(g) utilizing said portable communication device for analyzing said caller-identification information or optional numeric data by utilizing said means for comparing which is resident in said portable communication device to compare said caller-identification information or said optional numeric data with particular ones of said plurality of associated data fields of said database recorded in memory of said portable communication device and identifying	<i>Azuma</i> (§10) discloses utilizing the caller identification information by the page-receiving communicant for comparison within the portable communication device to an internal database. <i>Azuma</i> (§11) and <i>Wohl</i> (pg 10, lns 5-15), each discloses utilizing the optional numeric data by the page-receiving communicant for comparison within the portable communication device to an internal database. <i>See also Breeden</i> (col. 3, lns 9-15 and col. 2, lns 45-60), <i>Dai et al.</i> (col. 8, lns 19-24 and col. 23, lns 51-58)

matches between said caller-identification information or optional numeric data and at least one matched data item in said telephone number field; and	
(h) displaying information in said display member contained in selected ones of said plurality of data fields which are associated with said at least one matched data item in said display member of said portable communication device, including at least a portion of said caller-identification or optional numeric data information in said display member of said portable communication device in order to provide an indication of identity of said page-originating communicant which includes at least one name associated in said database with said caller identification information or said optional numeric data.	<i>Azuma</i> and <i>Wohl</i> each disclose displaying information contained in an internal database resulting from comparing caller identification information with information contained in those internal databases. <i>Azuma</i> (§§10-13), <i>Wohl</i> (pg 10, lns 5-15).
<b>CLAIM 11.</b> A method of communicating information, according to claim 10,	
further comprising: periodically updating said database recorded in memory to include new information regarding potential communicants.	Periodically updating an internal database is and has always been inherent in the operation of any portable communication device with memory. As a result, the step of periodically updating an internal database was known in the art more than one year prior to the filing date of the '064 patent. See, <i>Azuma</i> (§13), <i>Wohl</i> (pg. 9, lns. 8-16), and <i>DeLuca et al.</i> , U.S. Pat. No. 4,872,005 (col. 7, lns 41-51).
<b>CLAIM 12.</b> A method of communicating information, according to claim 10,	
further comprising: including in said portable communication device a calendar with fields annotated with particular dates; programming said portable communication device to automatically provide prompts.	<i>DeLuca et al.</i> discloses a table with selected dates as fields and provides for the generation of alerts or alarms based on certain dates. (col. 7, ln 64 - col. 8, ln 12).
<b>CLAIM 15.</b> A method of communicating information, according to claim 10,	
further comprising: providing a detachable input interface; connecting a detachable input interface to said portable connection device; utilizing said detachable input interface to modify said	Attaching portable communication devices to detachable input interfaces such as computers was known in the art more than one year prior to the filing of the '064 patent. See, <i>Wohl</i> (pg. 9, line 5-16) and <i>Vanden Heuvel et al.</i> , U.S. Pat. No.

database recorded in memory of said portable communication device.	5,281,962 (col. 5, ln 42 - col. 6, ln 35).
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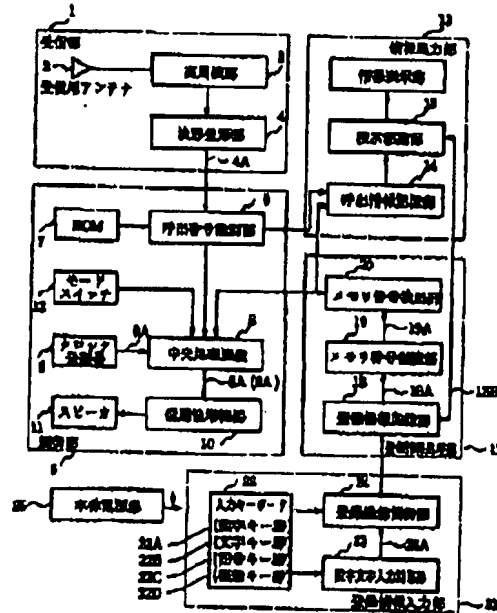
(74) 代理人 弁理士 内原 晋

(54) 【発明の名称】 メッセージ表示付きページヤ

(57) 【要約】

【構成】 メッセージを受信しそのメッセージを表示部に表示するページヤ受信表示機能を有するメッセージ表示付きページヤにおいて、ページヤ携帯者が付属するキースイッチ群を操作することにより、名前、電話番号、合言葉等を登録情報番号を付与して登録しておくことが可能であり、かつ、それらを随時読み出し検索並びに書き替えることができる。

【効果】 メッセージを受信しかつ表示するメッセージ表示型ページヤにおいて、名前、電話番号、合言葉等ページヤ携帯者が登録しておきたい登録情報を入力並びに記憶できるようになっており、さらに入力済の登録情報を収納している番地に対応するメモリ番号が割り当てられているので、メモリ番号に一致する数字列情報を受信するだけで該当する登録情報が検索され、かつ出力表示される。



(2)

特開平4-203324

【特許請求の範囲】

【請求項1】 メッセージを受信しそのメッセージを表示部に表示するページング受信表示機能を有するメッセージ表示付きページャにおいて、ページャ携帯者が付属するキースイッチ群を操作することにより、名前、電話番号、合言葉等を登録情報番号を付与して登録しておくことが可能であり、かつ、それらを随時読み出し検索並びに書き替えることができることを特徴とするメッセージ表示付きページャ。

【請求項2】 メッセージを受信しそのメッセージを表示部に表示するページング受信表示機能を有するメッセージ表示付きページャにおいて、ページャ携帯者が付属するキースイッチ群を操作することにより、名前、電話番号、合言葉等を登録情報番号を付与して登録しておくことが可能であり、かつ、それらを随時読み出し検索並びに書き替えることができると共に、前記登録情報番号に該当する数字列で構成される呼出情報を受信する時には、特定される番地に収められている登録情報を自動検索し表示を行なわせるようにしたことを特徴とするメッセージ表示付きページャ。

【発明の詳細な説明】

【0001】

【産業上の利用分野】 本発明はメッセージ表示付きページャに関し、特に、呼出者が発信した数字情報等を被呼出者が受信し、入力済であるところの数字や文字で構成されている登録情報を検索して、該当する登録情報を出力表示するメッセージ表示付きページャに関する。

【0002】

【従来の技術】 一般に良く知られるように、呼出者が外出中や外交セールス中の個人の被呼出者に、無線電波により連絡あるいは情報を提供するページングサービスが実施されている。その中でも数字や文字によって構成されるメッセージを表示することができるメッセージ表示付きページャが益々多く使用される傾向にある。

【0003】 従来、この種のメッセージ付きページャは、3種類の方式がある。第1番目として、呼出者側がプッシュボタン電話を用いて数字のみを直接入力することにより、被呼出者が携帯しているページャに入力内容と同一の数字のみを出力表示する数字表示方式（ニューメリックディスプレイ方式）がある。第2番目には、呼出者側がオペレータに入力依頼し、オペレータが数字や文字によって構成されるメッセージを入力することにより、被呼出者が携帯しているページャに入力内容と同一の数字やメッセージを出力表示する文字表示方式（アルファニューメリック又はカナディスプレイ方式）がある。さらに第3番目として、呼出者側がプッシュボタン電話を用いて#（シャープ）と\*（アスタリクス）の機能記号と数字を組み合わせて作る番号コードを入力することにより、被呼出者が自由に創作できない固定数の既

定型文表示方式がある。この3種類のページャ表示方式をそれぞれ数字表示型ページャ、文字表示型ページャ、および固定文表示型ページャと称している。

【0004】

【発明が解決しようとする課題】 上述した従来のメッセージ表示付きページャのうち数字表示型ページャでは電話番号メッセージ以外は数字の組み合わせメッセージであり、数字番号文表示となっているので、ページャ携帯者は数字番号文の意味をすべて覚えておくか、又は照合リストを別に準備しておかねばならないという欠点を有する。

【0005】 文字表示型ページャでは、受信メッセージが数字や文字によって構成されているので、ページャ携帯者は直読可能であり便利である。しかしながら呼出者側はプッシュボタン電話を用いる時に文字を直接入力できないので、#（シャープ）と\*（アスタリクス）の機能記号と数字を組み合わせての複雑な入力やパソコンを接続して数字や文字の入力を呼出者自身が行なうことが要求されたり、あるいは、オペレータ側でキーボード入力する際に、オペレータに入力依頼しなければならないわずらわしさがある。

【0006】 さらに、固定文表示型ページャでは、ページャ携帯者にとって定型文メッセージは直読可能であるが既設固定メッセージのみでは選択の自由度に欠け不便であり、又呼出者側は#（シャープ）と\*（アスタリクス）の機能記号と数字を組み合わせて番号コードを入力して既設固定メッセージを表示しなければならないという非常に複雑かつ不便な欠点を有している。

【0007】 本発明の目的は、呼出者側にとってはプッシュ電話を用いて数字を直接入力する方法で済み、ページャ携帯者にとってはあらかじめ本人が入力してある登録情報を受信した数字列情報に基づき検索して、出力表示を行なわせる、すなわち呼出者の送出する数字情報を被呼者の理解容易な情報登録読み出し機能を有するメッセージ表示型ページャを提供することにある。

【0008】

【課題を解決するための手段】 本発明のメッセージ表示付きページャは、メッセージを受信しそのメッセージを表示部に表示するページング受信表示機能を有するメッセージ表示付きページャにおいて、ページャ携帯者が付属するキースイッチ群を操作することにより、名前、電話番号、合言葉等を登録情報番号を付与して登録しておくことが可能であり、かつ、それらを随時読み出し検索並びに書き替えることができる。

【0009】

【実施例】 次に本発明について図面を参照して説明する。

【0010】 図1は本発明の一実施例のブロック図である。本実施例では受信部1に内蔵されている受信用アンテナ2により信号が受信され、高周波増幅部3および低周波増

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形部4を通過することにより、個別呼出番号と呼出情報とを含む出力番号4Aが、次段の制御部5にある呼出番号識別部6へ転送される。出力番号4Aの個別呼出番号は、ROM7の内部に記憶されているページ自体の個別呼出番号（すなわち認識番号）と比較され、認識番号と一致した場合に後述する呼出情報が情報出力部13の呼出情報記憶部14に記憶される。それと同時に、中央処理装置8から出力指令信号8Aが出力される。この出力指令信号8Aは、クロック発生部9で発生した信号9Aと共に記憶増幅部10へ送られ、これによってアラート音がスピーカ11より出力される。なお、アラート音の発生を停止する場合には、モードスイッチ12をリセットすることにより停止することができる。このアラート音に続き、数字や文字の組み合わせあるいは数字列で構成されるメッセージとしての呼出情報が呼出情報記憶部14から表示駆動部15を通過して出力され、情報表示部16に表示され、一定時間経過後に次画面表示へ移り、最終画面まで同様に繰り返す。その後、画面表示は自動的に消去される。

【0011】次に、ページ携帯者が登録済であるところの名前、電話番号、合言葉等の登録情報を、前記呼出情報の中で特に定められた数字列で構成されるメッセージと対比させて表示させる場合について説明する。登録情報は、登録情報記憶部17にある登録情報記憶部18に各情報ごとに個別収納されており、その収納番地を意味するアドレス番号18Aは、メモリ番号記憶部19に収納されている。前述の個別呼出番号に後述する呼出情報が呼出情報記憶部14に記憶されるときに、この呼出情報がメモリ番号に相当する数字列のみで構成されている場合には、メモリ番号抽出部20でその数字列内容とメモリ番号記憶部19から抽出されるメモリ番号番号19Aと比較される。このとき数字列とメモリ番号が一致する場合には、該当する登録情報を登録情報記憶部18から読み出し、信号18Bとして表示駆動部15を通過して出力され情報表示部16に表示される。一定時間経過後に次画面表示へ移り最終画面まで同様に繰り返した後に画面表示は自動的に消去される。

【0012】なお、数字列と一致するところのメモリ番号に該当する番地に登録情報が入力されていない場合、ならびに数字列と一致するメモリ番号自体が無い場合には、その数字列自体を呼出情報としてその表示情報表示部16に表示させることができる。

【0013】一方、登録情報に関する入力、出力表示、記憶、消去、検索等の各操作は登録情報入力部21にある入力キーボード22を通じて実行する。なお、入力キーボード22は4つのキー群より構成される。数字キー群22Aを用いて前記メモリ番号を入力設定し、電話番号などの数字を入力する。又名前や合言葉は、さらに文字キー群22B及び記号キー群22Cを用いメッセージ入力を行なう。入力確認・訂正・記憶・消去、読み出し

検索（探し出し、使用履歴照、アルファベット照、カナ照等による検索）、時限番号付き検索などの各機能を実行するには、機能キー群22Dの中に該当するキースイッチを使用する。これらの各機能は前記呼出情報の有無とは独立に操作し実行することができる。入力キーボード22の中の数字キー群22A、文字キー群22B、及び記号キー群22Cを操作することにより、数字文字入力回路部23で信号23Aが生成され、機能キー群22Dの操作によって備く登録情報制御部24を経由後に、前述の如く登録情報は登録情報記憶部18に、収納番地はメモリ番号記憶部19に収納されることにより登録が完了する。

【0014】本体電源部25は受信部1、制御部5、情報出力部13、登録情報記憶部17、並びに登録情報入力部21の各々へ電源を供給している。

【0015】

【発明の効果】以上説明したように本発明は、メッセージを受信しかつ表示するメッセージ表示型ページにおいて、名前、電話番号、合言葉等ページ携帯者が登録しておきたい登録情報を入力並びに記憶できるようになっており、さらに入力済の登録情報を収納している番地に対応するメモリ番号が割り当てられているので、メモリ番号に一致する数字列情報を受信するだけで該当する登録情報が検索され、かつ出力表示されるという効果を有する。すなわち、呼出者が従来どおり数字のみを入力するにもかかわらず、従来の数字呼号文が出力表示される代りに、該当する呼出者の名前や電話番号、さらには合言葉による用件が数字や文字によって構成されるメッセージによって出力表示されるので、ページ携帯者にとって直観、理解可能という効果を有している。

【0016】又メッセージ受信によるページング機能とは独立に、ページ携帯者にとっては電話番号等を随時入力、記憶、検索、表示をすることが可能であるという効果も有している。また、呼出者にとって入力が簡単であり、又オペレータにとっては数字列のみを送ることによりページング伝送時間を短縮できるので、電波の使用効率を上げるという効果を有する。

【図面の簡単な説明】

【図1】本発明の一実施例のメッセージ表示付きページのブロック図である。

【符号の説明】

- 1 受信部
- 2 受信用アンテナ
- 3 高周波部
- 4 波形整形部
- 5 制御部
- 6 呼出番号識別部
- 7 ROM
- 8 中央処理装置
- 9 クロック発生部



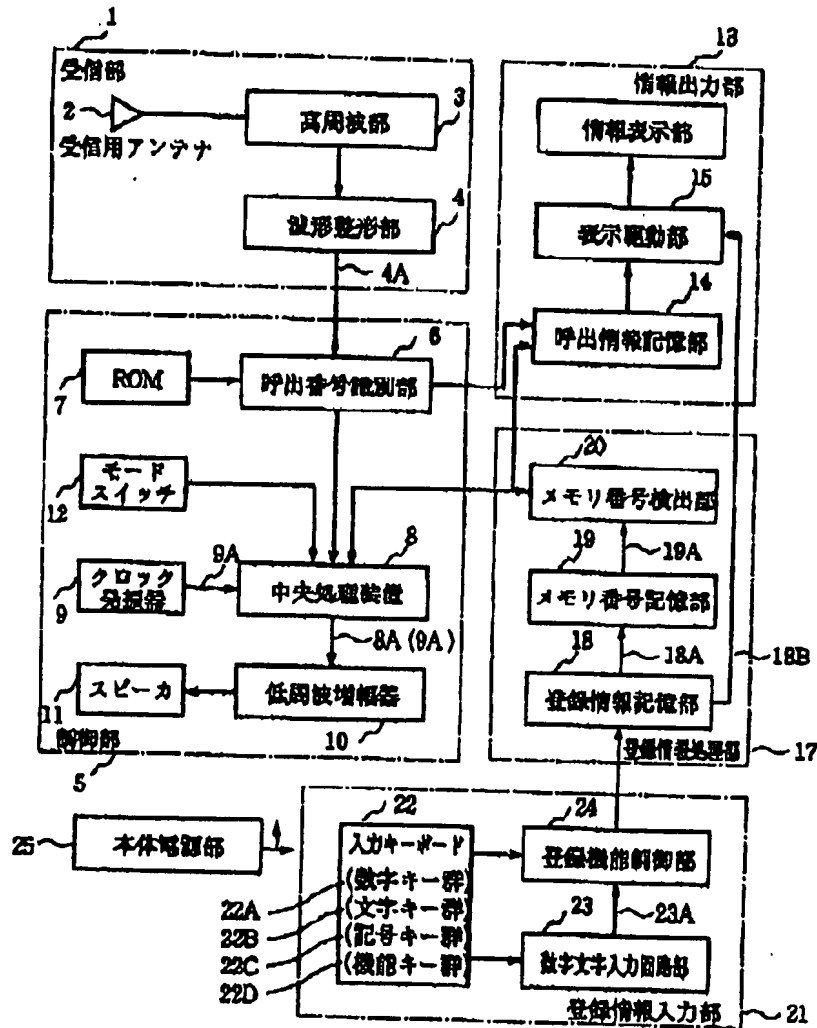
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- 10 低周波増幅部  
11 スピーカ  
12 モードスイッチ  
13 情報出力部  
14 呼出情報記憶部  
15 表示駆動部  
16 情報表示部  
17 登録情報記憶部

- 18 登録情報記憶部  
19 メモリ番号記憶部  
20 メモリ番号検出部  
21 登録情報入力部  
22 入力キーボード  
23 数字文字入力回路部  
24 登録機能制御部  
25 本体電源部

【図1】



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(54) Name of Invention: Pager with Message Display

## (57) Summary of Invention

Structure: A pager with message display which has the function to display pages received as well as to display in the display section messages received. The user of the pager with message display can manipulate a key switch group inherent to the pager that will display and register the name, phone number and password with a registration information number assigned by the user. The device can also search for, bring up and make changes to the information when the user desires.

Function: The user of this pager with message display which receives and displays messages is able to input and store desired registration information such as name, phone number and a password. Further, the registration information thus entered is stored in the system memory and assigned a memory number. When a message is received, the numerical information is matched with a corresponding memory storage location and corresponding registration information is displayed along with the message received.

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[See last page for drawing descriptions]

**Claims:**

What is claimed is:

**Claim 1:** A pager with message display which has the function to display pages received as well as to display in the display section messages received. The user of the pager with message display can manipulate a key switch group inherent into the pager that will display and register the name, phone number and password with a registration information number assigned by the user. The device can also search for, bring up and make changes to the information when the user desires.

**Claim 2:** A pager with message display which has the function to display pages received as well as to display in the display section messages received. The user of the pager with message display can manipulate a key switch group inherent into the pager that will display and register the name, phone number and password with a registration information number assigned by the user. The device can also search for, bring up and make changes to the information when the user desires. The pager with message display device described in Claim 1 can also store such registration information in a structural format so that when a message is received, corresponding registration information is automatically retrieved from system memory and displayed.

**Detailed Description of the Invention**

0001

**Field of the Invention:** This invention is related to pagers with message displays but in particular when the pager sends a page, the pager with message display searches its system memory and displays previously entered registration information if such information has been previously entered.

0002

**Description of Prior Art:** Personal paging services in which a person can communicate with or send information to the user through wireless frequencies while he or she is out of the office or on a sales call are well known. Pagers with message display that are able to display information in numbers or text are beginning to see more widespread use.

0003

Originally there were three types of pagers with message display. The first type is a numeric display type pager. This type functions by the caller physically inputting the intended call-back number into the phone keypad. This input number then appears on the pager display window. The second type is an alpha-numeric display or kana display type pager. This type functions by the caller speaking to an operator and conveying the message to the operator. The operator then sends the message, either text or numbers or both, to the pager and it is thus displayed in the pager display window. The third type is called a fixed message display type pager. This type functions by the caller, using a

combination of the pound (#) key and asterisk (\*) key and numeric keys, inputting a pass code and then being able to send messages to the user of the pager. With this type, the user is unable to manipulate the message in any way. It is displayed on the pager display window exactly as input by the caller. These three types of pagers are referred to as numeric display pagers, alpha-numeric display pagers, and fixed message display pagers.

0004

Issues the Invention Seeks to Resolve: Of the prior pager types outlined above, the numeric display pager required the caller to input either their desired callback phone number, or a message composed of numerals. If the user of the pager does not have a pre-arranged code worked out with the caller and does not understand the meaning of the numeric message, he or she would have to carry a code list to have the numeric coded message mean something. This is one of the drawbacks to this type of pager.

0005

With the alpha-numeric display pager, the received message is displayed in letters [Katakana characters] and numerals and thus can be directly read and easily understood by the user of the pager. However, the caller must employ a complicated system using the pushbutton keys on the phone including the pound sign (#) and the asterisk (\*) as well as number keys in order to input the intended message, has to connect using a computer and input the message in this way, or call an operator and ask the operator to input the message into the system for sending, thus making this alpha-numeric display pager difficult to use for the caller or person sending the message to be displayed. These are some of the drawbacks to this type of pager.

0006

With the fixed message display pager, the received message is displayed in letters [Katakana characters] and numerals and thus can be directly read and easily understood by the user of the pager. However once again the caller must employ a complicated system using the pushbutton keys on the phone including the pound sign (#) and the asterisk (\*) as well as number keys, along with a pass code in order to send predetermined fixed messages. It is difficult to use for the caller, and only preset messages can be sent. These are some of the drawbacks to this type of pager.

0007

The purpose of the current invention is to allow the caller to directly input numeric messages using pushbutton phones, as well as to allow the user of the pager to enter pertinent information about the caller and have this registered information displayed upon receipt of a message from that caller. The purpose of this invention is to have numeric information sent by the caller be received by the user of the pager in an easy to read and understandable fashion.

0008

Measures Implemented to Resolve Above Issues: A pager with message display which has the function to display pages received as well as to display in the display section messages received. The user of the pager with message display can manipulate a key switch group inherent into the pager that will display and register the name, phone number and password with a registration information number assigned by the user. The device can also search for, bring up and make changes to the information when the user desires.

0009

Preferred Embodiments: The following makes reference to the drawings to explain preferred embodiments.

0010

Drawing 1 is a block diagram of one preferred embodiment for this invention. In this embodiment, a signal is received by Reception Antenna 2 built into Reception Section 1. When the signal passes through High Frequency Section 3 and Frequency Modulator 4, Output Number 4A including the individual caller number and caller information is transmitted to the Caller Number Identification Section 6 inside Control Section 5. The individual caller number from Output Number 4A is compared to a list of recognized numbers stored in the memory inside the pager's ROM 7, and if there is a match, the caller information is stored in the Caller Information Storage Section 14 of the Information Output Section 13. An Output Command Signal 8A is simultaneously released by Central Processing Unit 8. This Output Command Signal 8A is sent together with Signal 9A generated by Block Vibration Section 9 to Low Frequency Amplifier 10 and causes an alert sound to sound from Speaker 11. If the user wishes to turn off the alert sound, he or she can do so by resetting Mode Switch 12. Following this alert sound, the message comprised of numbers, text [Katakana characters] or a combination of both representing the caller information is output from Caller Information Storage Section 14, passes through Display Driver Section 15 and is displayed on Information Display Section 16. Following this progression, the pager moves to the next screen and proceeds to flash back and forth to the last screen. After this, the screen display automatically shuts down.

0011

Next of all the cases outlined above where the user of the pager has previously input registration information about a specific caller such as the caller's name, phone number or a pass code, the specific case of when the caller inputs his or her message as a predetermined series of numbers will be explained. The registration information is individually received into Registration Information Storage Section 18 of the Registration Information Processing Section 17. Address Signal 18A, which refers to the individual storage location, is received into Memory Number Storage Section 19. When the caller information following the aforementioned individual caller number is stored in Caller Information Storage Section 14, and the caller information is comprised only of a series of

numbers corresponding to its memory location number, the series of numbers is compared to the Memory Number Signal 19A sent from Memory Number Search Section 20 and Memory Number Storage Section 19. If the series of numbers and the memory number match, the corresponding registration information is read from Registration Information Storage Section 18, Signal 18B passes through Display Driver Section 15, and is output and displayed on Information Display Section 16. Following this progression, the pager moves to the next screen and proceeds to flash back and forth to the last screen. After this, the screen display automatically shuts down.

#### 0012

If there is no registration information in a memory location corresponding to a memory location number which matches the series of numbers that has been previously input by the user of the pager, or if there is no memory number itself matching the series of numbers input by the caller, the series of numbers itself is displayed as is on Information Display Section 16 as the caller information.

#### 0013

All functions regarding the registration of caller information such as input, output display, storage, deletion and search are accomplished through Input Keyboard 22 in the Registration Information Input Section 21. Input Keyboard 22 is comprised of four clusters of keys. The Numeric Key Cluster 22A is used to input and assign the aforementioned memory numbers, as well as input other numeric information such as phone numbers. Name and pass codes are input using the Text [Katakana Characters] Key Cluster 22B and Symbol Key Cluster 22C, as well as message text. The corresponding key switch in Function Key Cluster 22D is used to perform various functions including: Confirm Entry, Revise Entry, Save, Delete, Search (First Letter Search, List in Order of Frequency of Use, Alphabetical Order, Katakana Character Order) or Search Using Pass Codes. These functions can be used independently of the existence of previously input caller information. When Numeric Key Cluster 22A, Text [Katakana Characters] Key Cluster 22B or Symbol Key Cluster 22C of Input Keyboard 22 is used, Signal 23A is generated by Alpha-Numeric Input Circuit Section 23. After passing through Registration Function Control Section 24, which works in accordance with commands input to Function Key Cluster 22D, the aforementioned registration information is stored in Registration Information Storage Section 18, a memory location is allocated by Memory Number Storage Section 19, and the registration is complete.

#### 0014

Unit Power Section 25 provides power to Reception Section 1, Control Section 5, Information Output Section 13, Registration Information Processing Section 17 and Registration Information Input Section 21.

#### 0015

**Function of the Invention:** As explained above, the user of this pager with message display which receives and displays messages is able to input and store desired registration information such as name, phone number and a password. Further, the registration information thus entered is stored in the system memory and assigned a memory number. When a message is received, the numerical information is matched with a corresponding memory storage location and corresponding registration information is displayed along with the message received. In addition, although the caller inputs a numeric message as in previously available types of pagers, instead of having this numeric message be displayed on the pager display window as a numeric code, the present invention displays the message as the corresponding caller's name and phone number, or if a previously agreed pass code is entered by the caller, the message is displayed as an alpha-numeric message on the pager's display window. This function is easy to read and understand by the user of the pager.

0016

Further, aside from its function as a pager with message display, the present invention also has a function which allows the user to input, store, search and display information about various callers. The inputting of messages by the caller is easier, and the sending of prearranged series of numbers by the operator means the operator's time with each call is reduced, and the overall usage of wireless frequencies is reduced.

#### **Brief Description of the Drawings**

**Drawing 1:** Drawing 1 is a block diagram of one preferred embodiment for this invention.

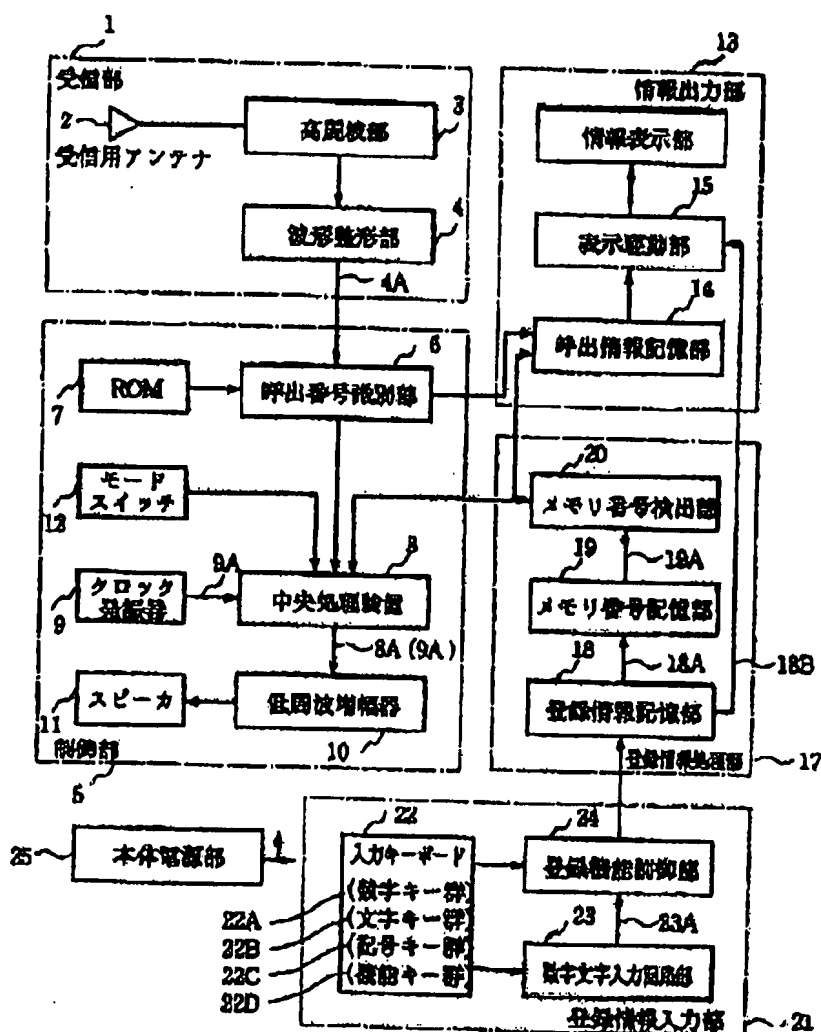
#### **Drawing Legend:**

- 1 Reception Section
- 2 Reception Antenna
- 3 High Frequency Section
- 4 Frequency Modulator
- 5 Control Section
- 6 Caller Number Identification Section
- 7 ROM
- 8 Central Processing Unit
- 9 Block Vibration Section
- 10 Low Frequency Amplifier
- 11 Speaker
- 12 Mode Switch
- 13 Information Output Section
- 14 Caller Information Storage Section
- 15 Display Driver Section
- 16 Information Display Section
- 17 Registration Information Processing Section
- 18 Registration Information Storage Section

- 19 Memory Number Storage Section
- 20 Memory Number Search Section
- 21 Registration Information Input Section
- 22 Input Keyboard
- 23 Alpha-Numeric Input Circuit Section
- 24 Registration Function Control Section
- 25 Unit Power Section

- [22A Numeric Key Cluster]
- [22B Text [Katakana Characters] Key Cluster]
- [22C Symbol Key Cluster]
- [22D Function Key Cluster]

Fig. 1





# United States Patent <sup>(19)</sup>

Vanden Heuvel et al.

US005281962A

[11] Patent Number: 5,281,962

[45] Date of Patent: Jan. 25, 1994

[54] METHOD AND APPARATUS FOR  
AUTOMATIC GENERATION AND  
NOTIFICATION OF TAG INFORMATION  
CORRESPONDING TO A RECEIVED  
MESSAGE.

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Ariz.; Charles J. Gannacheau, Jr.,  
Boynton Beach, Fla.

[75] Assignee: Motorola, Inc., Schaumburg, Ill.

[21] Appl. No.: 880,274

[22] Filed: May 8, 1992

[31] Int. Cl.: H04B 7/00; H04Q 7/04;  
G08B 5/22

[52] U.S. Cl.: 340/825.44; 340/311.1;  
340/825.27; 364/705.05

[58] Field of Search: 340/825.44, 825.52,  
340/311.1

## [56] References Cited

### U.S. PATENT DOCUMENTS

4,873,519 10/1989 Matsui et al. 340/825.44  
5,043,721 8/1991 May 340/825.44  
5,049,874 9/1991 Ishida et al. 340/825.44

### FOREIGN PATENT DOCUMENTS

WO91/11889 8/1991 World Int. Prop. O. H04Q 7/00

Primary Examiner—Donald J. Yusko

Assistant Examiner—Edward Merz

Attorney, Agent, or Firm—Kelly A. Gardner; Daniel R.  
Collopy; Thomas G. Berry

## [57] ABSTRACT

In a selective call receiver (110) for receiving selective call messages, a method for generation and notification of tag information comprises the steps of receiving (310) a selective call message and generating (345, 355) tag information in response to receiving the message. A further step includes providing (350) the tag information to an interface (250) for coupling to an exterior electronic device (410).

21 Claims, 4 Drawing Sheets

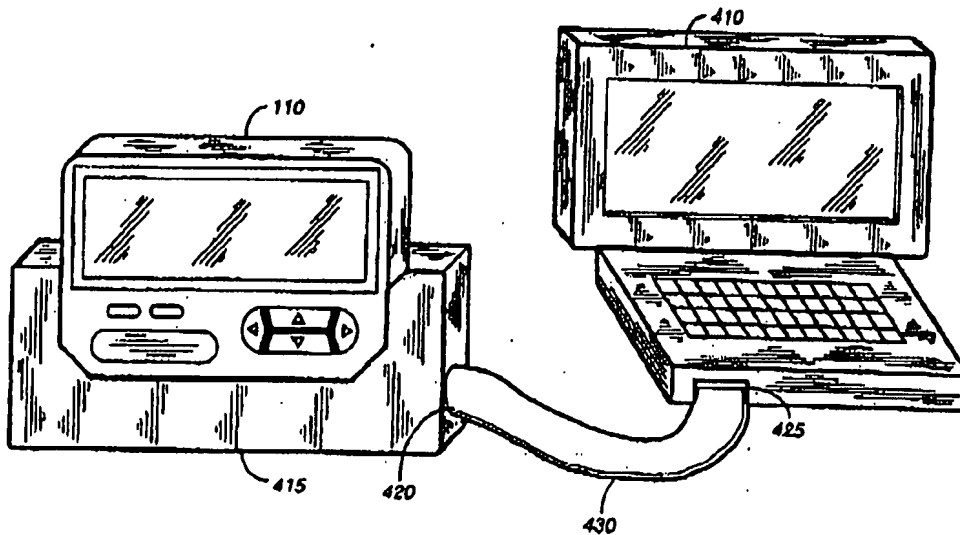


EXHIBIT F

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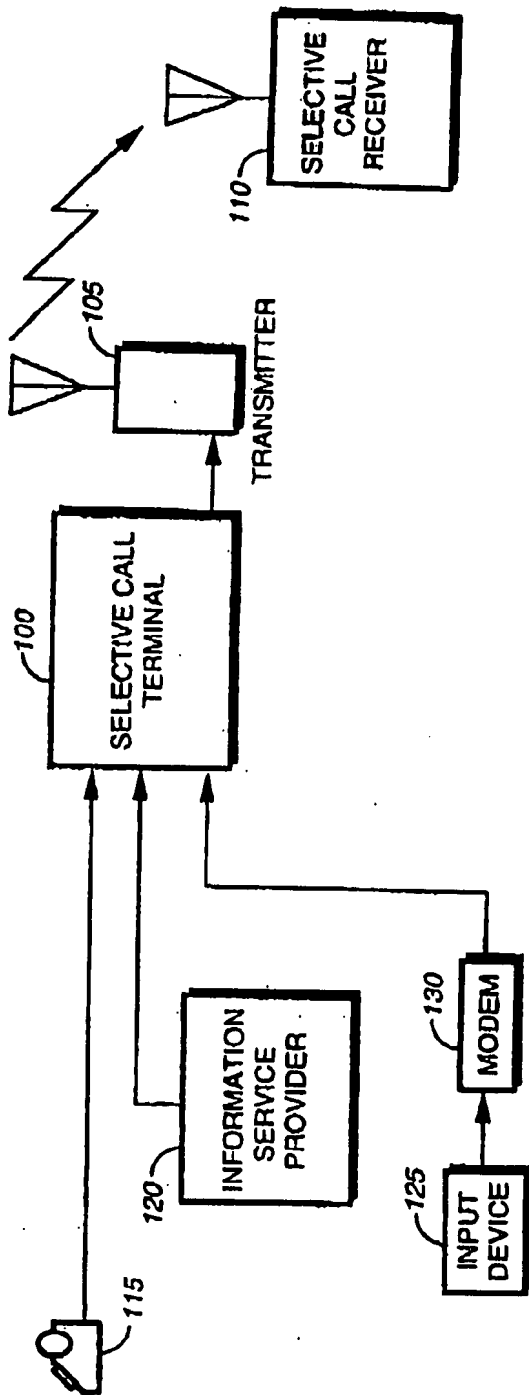


FIG. 1

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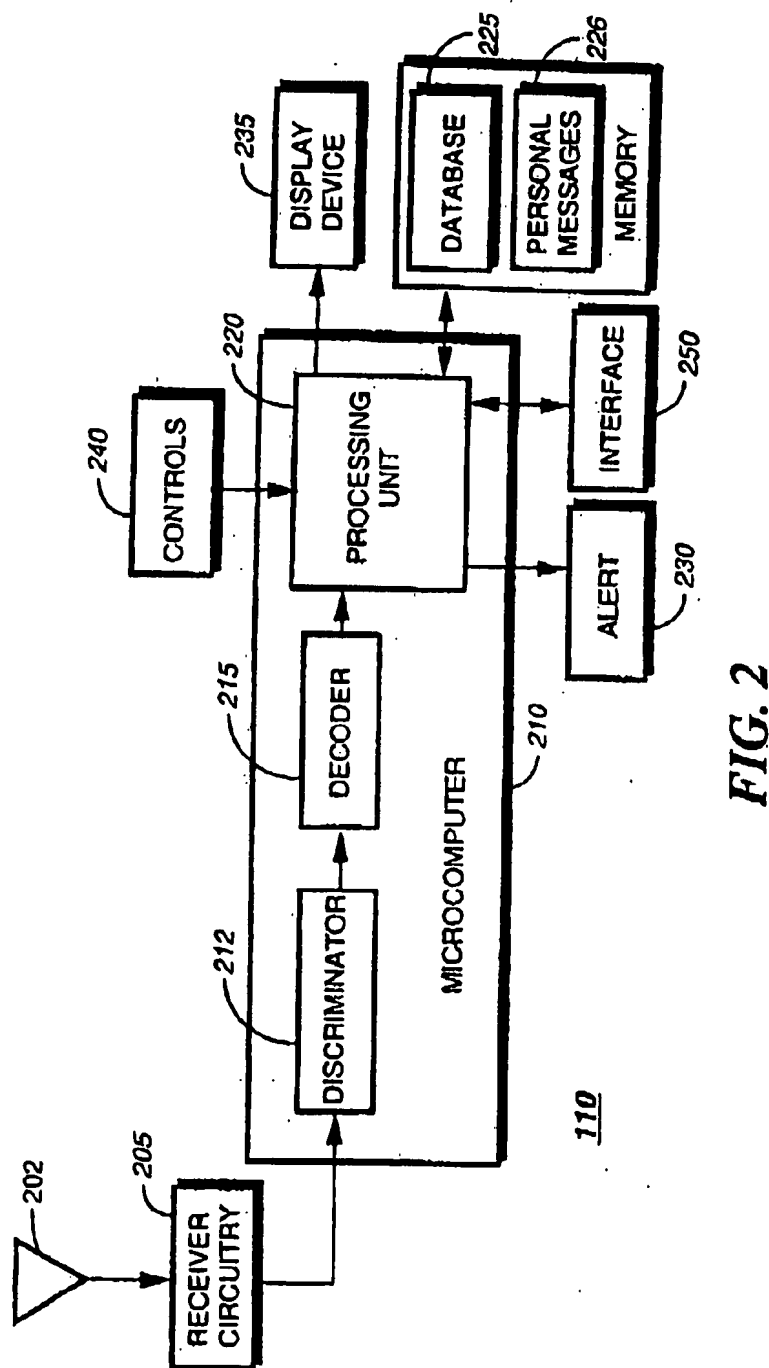


FIG. 2

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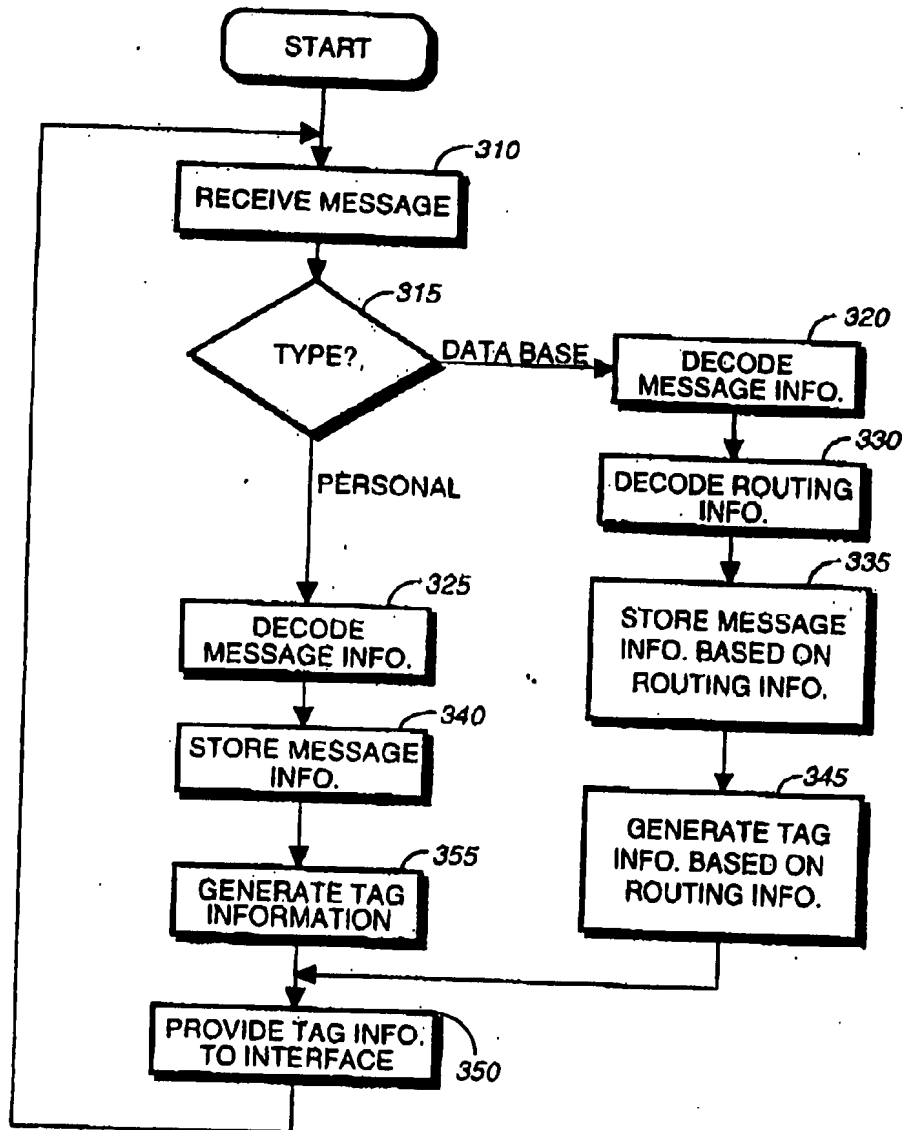


FIG. 3

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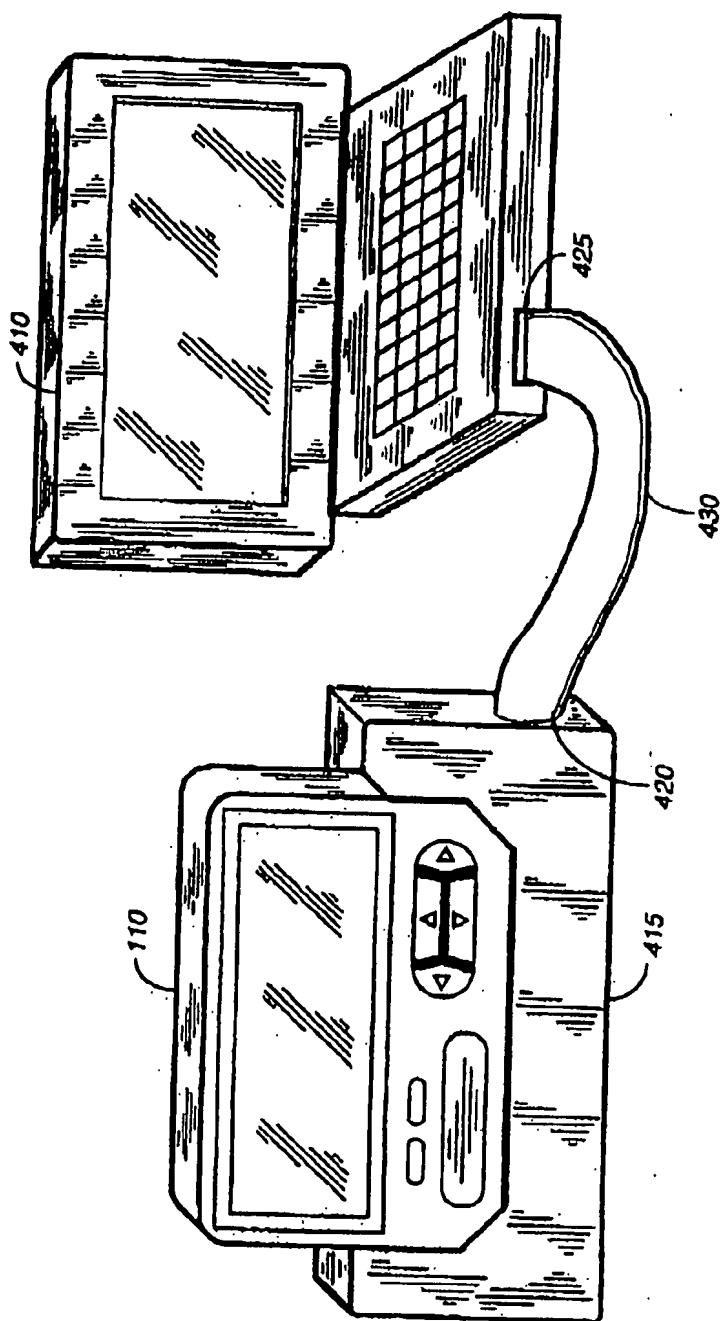


FIG. 4

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# METHOD AND APPARATUS FOR AUTOMATIC GENERATION AND NOTIFICATION OF TAG INFORMATION CORRESPONDING TO A RECEIVED MESSAGE

## FIELD OF THE INVENTION

This invention relates in general to selective call receivers, and more specifically to a method and apparatus for automatic generation and notification of identification information corresponding to a received message.

## BACKGROUND OF THE INVENTION

Selective call messaging, such as paging messaging, involves transmitting a message or a page to an intended selective call receiver by radio frequency (RF) signals. The page is received from an originator at a selective call terminal and is encoded into a format recognizable by the selective call receiver. A selective call address assigned to the receiver is added to the message to indicate the intended selective call receiver. The message is then transmitted for reception within a selective call system coverage area in which the receiver is expected to be located.

Conventionally, pages are received by the selective call terminal from remote devices via telephones, in the case of voice and numeric messages, or data handlers, in the case of alphanumeric messages. In addition, some pages are originated from information supplied to video display terminals (VDTs) coupled directly to the selective call terminal. The formats of the signals received from the telephones, data handlers, and VDTs are known to the selective call terminal and are compatible with the formatting of the selective call signals into known signalling formats.

Pages sent from the data handler to the selective call terminal may originate from information service providers as well. Information service providers may provide database messages including financial data, news, sports or other generally distributed information. Each selective call receiver which is to receive database messages from an information service provider must recognize which database messages are authorized for reception by the selective call receiver. Initially, when the selective call receiver receives an RF signal, it must discriminate between personal messages and database messages sent by information service providers. Once this is accomplished, the selective call receiver determines whether or not the database message is one that the selective call receiver is authorized to receive. The personal messages and the authorized database messages are subsequently stored in memory.

Both database messages sent by information service providers and personal messages may be viewed by the user on a display device, such as a liquid crystal display (LCD), incorporated by the selective call receiver. Displaying a database on the LCD may become unwieldy, however, due to the typically long length of database information and the small size of the LCD. In such cases, conventional selective call receivers may be conveniently coupled to an external electronic device, such as a personal computer, having a larger display. The database may then be transmitted from the selective call receiver to the computer for subsequent viewing by the user.

Information service providers may provide large quantities of data in each database message, resulting in

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large internally stored databases within the selective call receiver. Transmitting the data to a computer can be time consuming, and, if several databases are transmitted at approximately the same time, the user may have to wait to read the database. The volume of data can be, and in most cases is, greater than a typical user can easily consume, even if the database is transmitted to an external electronic device for display on a large display device. For example, when a message updating a database is received by a selective call receiver, the user must often scroll through the entire database, whether it is displayed by the LCD or by an external electronic device, to read the updated portion. In this manner, the user may waste time by scrolling through an entire database before discovering that the changes made in the database are of no interest to him.

To aid the user in interpreting the data, some limited data processing features have been developed and incorporated in selective call receivers, although the features are severely limited by constraints on the space available for software within the selective call receiver. One such feature allows the user to scroll through the data and select a specific page of data within a database in which he is particularly interested. Thereafter, the selective call receiver will automatically present the selected page of data whenever the selected page is updated by a database message. Due to power consumption restrictions and software space constraints within the selective call receiver, however, the use of processing features can be so limited as to be of minimal assistance to the user.

Thus, what is needed is a method and apparatus for generating identifying information about messages and notifying an external processor having additional processing resources of the identifying information without overloading the interface therebetween with message transference.

## SUMMARY OF THE INVENTION

According to a first aspect of this invention, a method for generation and notification of tag information to a selective call receiver comprises the steps of receiving a selective call message and generating tag information in response to receiving the message. A further step includes sending the tag information to an interface for coupling to an external electronic device.

According to a second aspect of this invention, a selective call receiver for receiving selective call messages comprises receiver means for receiving a selective call message, storage means coupled to the receiver means for storing message information included in the message, and generating means coupled to the receiver means for generating tag information in response to receiving the message. The selective call receiver further comprises an interface coupled to the generating means for coupling to an external electronic device and communication means coupled to the generating means for sending the tag information to the interface.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram of a selective call system in accordance with a preferred embodiment of the present invention.

FIG. 2 is a block diagram of a selective call receiver in accordance with the preferred embodiment of the present invention.

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FIG. 3 is a flowchart of the operation of the microcomputer of FIG. 1 in accordance with the preferred embodiment of the present invention.

FIG. 4 is an illustration depicting a selective call receiver coupled interactively to an external electronic device in accordance with the preferred embodiment of the present invention.

### DESCRIPTION OF A PREFERRED EMBODIMENT

Referring to FIG. 1, a selective call system, in accordance with a preferred embodiment of the present invention, comprises a selective call terminal 100 which provides selective call signals to a transmitter 105 for transmission to at least one selective call receiver 110. The selective call signals are selective call messages which have been encoded into radio frequency (RF) signals by the selective call terminal 100.

The information comprising the selective call messages may be numeric or voice information received from a telephone 115 via the public switched telephone network. Additionally, the information may be a numeric or alphanumeric database received from an information service provider 120. The information service provider 120 collects information on sports, stocks, world finance, and other areas of interest to the public and sends a database message, corresponding to the collected information, to the terminal 100. The database message sent by the information service provider typically comprises message information, e.g., an updated portion of a previously received complete database, and routing information that identifies a previously received database and a destination within the specified database wherein the message information is to be located. Finally, the information may be received from another input device 125, e.g. a personal computer or electronic mail service, via a modem 130 as alphanumeric or numeric information.

The information from the information service provider 120 and the other input devices 125 is provided to the selective call terminal 100 which formats and encodes the information into a signalling format suitable for broadcasting by the selective call terminal 100. The selective call terminal 100 provides the encoded information to a transmitter 105 for transmission therefrom.

The selective call receiver 110 receives the selective call signal and discriminates between personal messages, i.e., those not sent by an information service provider, and database messages sent by an information service provider. The selective call receiver 110 must recognize which database messages are authorized for reception by the selective call receiver 110 and reject unauthorized database messages. The personal messages and the database messages are then stored in a memory within the selective call receiver 110.

Referring next to FIG. 2, a block diagram of the selective call receiver 110 in accordance with the present invention is depicted. The selective call receiver 110 comprises an antenna 202 for receiving a selective call message and receiver circuitry 205 coupled to the antenna 202 for demodulating the selective call message. A microcomputer 210 coupled to the receiver circuitry 205 comprises a discriminator 212 for determining the type of message, i.e., personal or database. If the message is a database message sent from an information service provider, the discriminator 212 determines whether or not the database message is one that the selective call receiver 110 is authorized to receive. Un-

authorized database messages are thereafter rejected. Authorized database messages and personal messages are decoded by a decoder 215, which is internal to the microcomputer 210 and coupled to the discriminator 212, to recover message information included in both personal messages and database messages. If the message is a database message, the decoder 215 additionally decodes routing information included in the database message which identifies a destination within a specific database wherein the message information is to be located. The microcomputer 210 further comprises a processing unit 220 for processing the decoded message. The processing unit 220 stores the message information included in either type of message in the appropriate database memory 225 or personal message memory 216. In the case of personal messages, the processing unit 220 then sends a signal to an alert mechanism 230, in response to which the alert mechanism 230 may provide an alert to inform the user that a message has been received. If the message is to be presented by the selective call receiver 110, the processing unit 220 sends the message to a display device 235 incorporated by the selective call receiver 110. The message may be presented automatically or manually, when the processing unit 220 receives a signal from user actuated controls 240.

In operation, the processing unit 220 stores the message information included in a database message in a location indicated by the routing information. In this manner, the databases stored in the memory 225 are updated appropriately as each new database message is received. In addition, the processing unit 220, in accordance with the present invention, generates tag information in response to receiving a database message. The tag information is based on the routing information and comprises a database identification, indicating which database is to be updated, and a block number, indicating which portion of the targeted database is affected. The processing unit 220 subsequently sends the tag information to an interface 250 which may be interactively coupled to an external electronic device having additional processing resources.

FIG. 3 is a flowchart illustrating the operation of the microcomputer 210 (FIG. 2), wherein tag information is generated in response to reception 310 of a selective call message. In accordance with the present invention, the discriminator 212 internal to the microcomputer 210 receives 310 the message and determines 315 the type of the received message, which may be a personal message or a database message sent by an information service provider. Thereafter, the decoder 215 (FIG. 2) recovers 320, 325 message information contained in the received message. If the received message is a database message, the received message additionally comprises routing information sent by the information service provider, in which case the decoder 215 decodes 330 the routing information. The decoded routing information includes a destination in a specified previously created database wherein the message information is to be placed. The processing unit 220 (FIG. 2) stores 335, 340 the message information regardless of the type of the received message. However, in the case of a database message, the routing information included in the database message is used to determine the location of the message information in the memory 225. The processing unit 220 further generates 345 tag information based on the routing information in response to receiving the database message. The tag information comprises a database identifi-

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cation, indicating which database is to be updated, and a block number, indicating which portion of the targeted database is affected. This tag information is then provided 250 to the selective call receiver interface 250 and processing returns to await reception 310 of a next selective call message.

In accordance with the present invention, the selective call receiver interface 250 (FIG. 2) may be coupled interactively to an external processor having additional processing capabilities. Conventionally, a selective call receiver is limited in the functions by which it may manipulate received data by microcomputer software space considerations. As a result, the user may not be able to easily utilize the large amounts of data that are typically present in database messages sent by an information service provider. The interactive coupling of the selective call receiver, especially in cases where large amounts of data are received by the selective call receiver, to the external processor allows the user to conveniently make use of the additional processing 20 capability of the external processor. In this manner, the user may, for example, conveniently employ customized software, executed on the external processor, to monitor the received tag information, and, depending on the tag information, perform specific functions requested by the user.

In accordance with an alternate embodiment of the present invention, the processing unit 220 (FIG. 2) may also generate 355 tag information in response to the reception 310 of a personal message. In this case, the tag information might comprise information about the storage location of the message information included in the personal message or information including the address on which the personal message was received. The tag information could also be provided 350 to the selective call receiver interface 250 for subsequent transmission to an external processor. The external processor could, as with database messages, receive the tag information corresponding to the personal message and, depending on the tag information, perform user specified operations to assist the user of the selective call receiver.

FIG. 4 depicts the selective call receiver 110 interactively coupled to a personal computer 410 having additional processing resources. In accordance with the present invention, the selective call receiver 110 is placed in an interface unit 415 such that the selective call receiver interface 250 (FIG. 2) is connected to interface contacts, within the interface unit 415, which are coupled to a standard interface 420 located on the exterior of the interface unit 415. The standard unit 30 interface 420 is connected to a standard interface 425 on the external processor 410 via an RS-232 interface connection 430, such as an RS-232 interface. When the selective call receiver 110 receives a database message from an information service provider, the processing 35 unit 220 (FIG. 2) generates tag information, comprising database identification and a block number, which is sent to the selective call receiver interface 250. If the selective call receiver 110 is coupled, via the interface unit 415 and the RS-232 interface connection 430, to the external processor 410, the tag information is transmitted to the external processor 410. Because the external processor 410 may contain virtually unlimited resources for processing data as compared to the receiver, the user may employ these resources to aid in the interpretation of database messages sent from an information service provider. Software, customized by the user, can be executed on the external processor 410 to communi-

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cate with the selective call receiver 110 and respond to the tag information generated by the processing unit 220 (FIG. 2) internal to the selective call receiver 110.

Tag information transmitted by a selective call receiver allows an external processor to selectively respond to data base messages received by the selective call receiver. In some cases, for example, the incoming data messages may be received by the selective call receiver more rapidly than they can be transmitted to the external processor. In accordance with the present invention, the tag information can be generated and provided to the interface faster than providing the incoming data messages thereto. When the external processor detects tag information indicating an update of interest to the processor has been received by the selective call receiver, the external processor can retrieve the information of interest from the receiver and act thereon.

Several applications for this invention become immediately apparent. For example, software installed on an external processor could monitor a selected set of stock market volumes, trends, quotations, etc. Upon reception of tag information indicating that price updates concerning a particular stock have been received by the selective call receiver, the external processor could retrieve the updated database information to catalog the price information or to notify the user when the price reaches a specified level. Additionally, the monitoring of database parameters could trigger other event sequences, such as alerting a user when certain conditions occur. Thus, the present invention advantageously allows each user to monitor and manipulate incoming data in a manner that may be tailored to his specific business and personal needs.

By now it should be appreciated that there has been provided a method and apparatus for generating identifying information about messages and notifying an external processor having additional processing resources of the identifying information for use thereby.

We claim:

1. In a selective call receiver for receiving selective call messages and for storing database, a method for processing the selective call messages, the method comprising the steps of:

(a) receiving and decoding a selective call message to recover therefrom message information, wherein the message information is updated information intended for replacing at least a portion of one of the databases;

(b) generating, in response to reception of the selective call message, tag information indicative of the one of the databases to which the message information relates and indicative of the at least a portion of the one of the databases which is to be replaced; and

(c) sending the tag information to an interface for coupling to an exterior electronic device.

2. The method in accordance with claim 1, further comprising the step of:

(d) storing the message information included in the selective call message in a memory.

3. The method in accordance with claim 2, wherein step (b) comprises the step of:

(e) generating the tag information based on routing information included in the selective call message.

4. The method in accordance with claim 3, wherein step (d) comprises the step of:



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(f) storing the message information included in the selective call message in a memory location determined by the routing information included in the selective call message.

5. The method according to claim 3, wherein step (b) comprises the step of:

(a) generating, in response to reception of the selective call message, tag information comprising a database identification and a block number, wherein the database identification identifies the one of the databases to which the message information relates, and wherein the block number specifies the at least a portion of the one of the databases which is to be replaced.

6. In a selective call receiver for receiving selective call messages and for storing database, a method for processing the selective call messages, the method comprising the steps of:

(a) receiving and decoding a selective call message to recover message information therefrom;

(b) determining that the message information is updated information intended for replacing at least a portion of one of the databases;

(c) generating, in response to determining that the message information is updated information, tag information indicative of the one of the databases to which the message information relates and indicative of the at least a portion of the one of the databases which is to be replaced;

(d) storing the message information included in the selective call message in a memory; and

(e) sending the tag information to an interface for coupling to an external electronic device.

7. The method according to claim 6, wherein step (c) comprises the step of:

(f) generating the tag information based on routing information included in the selective call message when the message information is determined to be updated information.

8. The method according to claim 7, wherein step (d) comprises the step of:

(g) storing the message information included in the selective call message in a memory location determined by the routing information included in the selective call message when the message information is determined to be updated information.

9. The method according to claim 6, wherein step (c) comprises the step of:

(h) generating, in response to determining that the message information is updated information, tag information comprising a database identification and a block number, wherein the database identification is indicative of the one of the databases to which the message information relates, and wherein the block number is indicative of the at least a portion of the one of the databases which is to be replaced.

10. In a selective call receiver for receiving selective call messages of different types, a method for processing the selective call messages, the method comprising the steps of:

(a) receiving and decoding a selective call message to recover message information therefrom;

(b) determining whether the message information comprises a personal message or a database message, wherein a database message is defined as being updated information for replacing at least a portion of a stored complete database;

(c) generating tag information in response to receiving the selective call message when the message information included therein comprises a database message, wherein the tag information comprises a database identification indicative of the stored complete database to which the database message relates and further comprises a block number indicative of the at least a portion of the stored complete database which is to be replaced by the database message;

(d) storing the message information included in the selective call message in a memory;

(e) alerting the user that the selective call message has been received; and

(f) sending the tag information to an interface for coupling to an external electronic device.

11. The method according to claim 10, wherein step (c) comprises the step of:

(g) generating the tag information based on routing information included in the selective call message.

12. The method according to claim 11, wherein step (d) comprises the step of:

(h) storing the message information included in the selective call message in a memory location determined by the routing information when the message information comprises a database message.

13. A selective call receiver for receiving selective call messages and for storing databases, the selective call receiver comprising:

receiver means for receiving and decoding a selective call message to recover therefrom message information comprising updated information for replacing at least a portion of a complete database;

storing means coupled to the receiver means for storing the message information included in the selective call message;

generating means coupled to the receiver means for generating tag information in response to receiving the selective call message, wherein the tag information indicates the complete database to which the message information relates and further indicates the at least a portion of the complete database which is to be replaced by the message information;

an interface coupled to the generating means for coupling to an external electronic device; and

control means coupled to the generating means and the interface for providing the tag information to the interface after generation thereof.

14. The selective call receiver in accordance with claim 13, wherein:

the storing means stores the message information included in the selective call message in a memory location determined by routing information included in the selective call message; and wherein the generating means generates the tag information based on the routing information.

15. The selective call receiver in accordance with claim 13, further comprising determining means coupled to the receiver means and the generating means for determining that the message information comprises updated information relating to a database.

16. The selective call receiver in accordance with claim 15, wherein:

the storing means stores the message information included in the selective call message in a memory location determined by routing information included in the selective call message when the mes-

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sage information comprises updated information; and  
the generating means generates the tag information based on the routing information when the message information comprises updated information.  
17. The selective call receiver in accordance with claim 13, wherein the tag information comprises a database identification indicative of the complete database and a block number indicative of the at least a portion of the complete database.  
18. A selective call receiver for receiving selective call messages of different types and for storing databases, the selective call receiver comprising:  
a receiver for receiving a selective call message;  
a decoder for decoding the selective call message to recover therefrom message information;  
a memory coupled to the receiver for storing the message information included in the selective call message;  
processing means coupled to the receiver and the memory for determining whether the message information comprises updated information for replacing at least a portion of a complete database;  
an interface coupled to the processing means for coupling to an external electronic device; and  
generating means for generating tag information in response to the processing means determining that

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the message information comprises updated information and for providing the tag information to the interface, wherein the tag information indicates the complete database to which the message information relates and further indicates the at least a portion of the complete database which is to be replaced.  
19. The selective call receiver in accordance with claim 18, wherein:  
the memory stores the message information included in the selective call message in a memory location determined by routing information included in the selective call message when the message information comprises updated information; and  
the processing means generates the tag information based on the routing information when the message information comprises updated information.  
20. The selective call receiver in accordance with claim 19, further comprising alerting means coupled to the processing means for alerting a user when the selective call message has been received.  
21. The selective call receiver in accordance with claim 18, wherein the tag information comprises a database identification indicative of the complete database and a block number indicative of the at least a portion of the complete database.  
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